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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/774,877	02/01/2001	Kaushal Shastri	Q62891	3162

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EXAMINER	
FOULADI SEMNANI, FARANAK	
ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 08/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/774,877	SHASTRI ET AL.	
	Examiner	Art Unit	
	Faranak Fouladi	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☒ Claim(s) *13-21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 February 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This action is responsive to communications: application, filed on 02/01/01; Amendment A, filed on 5/27/03.
2. Claims 1-21 are pending in the case, with claims 1, 5 and 9 being independent.
3. Claims 13-21 are new claims.
4. The present title of the application is "Image display Method, Apparatus and Storage Medium" (as originally filed).
5. **THIS ACTION IS MADE FINAL.**

Specification

6. The disclosure is objected to because of the following informalities:
    - There is a grammatical error in the last paragraph of page 6 lines 24-26 of specification.
    - On page 11 line 2 of Amendment A, "monitors 2A and 22B" should read "monitors 22A and 22B".
    - On page 11 line 4 of Amendment A, change "in region S3" to "in region A3".
    - On page 11 line 6 of Amendment A, change "S1 has only" to "S1, S3, O1 and O3 have only".
    - On page 11 line 8 of Amendment A and page 13 line 10 of specification, "mage" should read "image".
    - On page 12 line 18 of specification delete "(a)" in "Fig. 3 (a)".

- On page 14 line 2 of specification, "monitor 2A" should read "monitor 22A".

Appropriate correction is required.

Claim Objections

7. Claims 13-18 are objected to because of the following informalities:

They include "predetermined temporal order" which is inconsistent with terminology ("predetermined order") used in claim 1.

8. Claims 13 and 15-21 are objected to because of the following informalities:

They include "wherein protocol sequence" which is inconsistent with "display protocol sequence" used in previous claims.

9. Claim 20 is objected to because of the following informalities: It is not clear what corresponds to the phrase ",each comprising multiple images," in line 2 of the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 13-18 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains

subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

- "predetermined temporal order" has not been described in the specification.

On page 4 lines 7-13 of specification applicant states that "....a plurality of display protocols that define a display layout are lined up in a predetermined order, and the plurality of images are displayed on the display means." and he does not describe "predetermined temporal order".

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 13-15 and 19-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

14. In claims 13-15 the limitation "each of the plurality of display protocols include multiple images", and in claims 19-21 the limitation "comprising multiple images" render the claims indefinite because "display protocol" is defined in the specification page 4 lines 16 to 20 as follows:

> "The expression "display protocol" refers the protocol which defines image layout, image display conditions, image processing conditions, etc.,

based on an examination, a series, the examining doctor or group of doctors, the place an image will be used and/or the purpose of the image, etc. More specifically, a definition by which a screen is divided into four regions... a definition by which a screen is divided into 9 regions..., a display screen may be divided up and images displayed based on whether or not a contrast medium was used when an image was taken, etc., may be employed as display protocols."

based on the above definition display protocol is a set of rules or an arrangement applied to any multiple images in order to displaying them, and therefore display protocol does not include (or comprise) multiple images, it may be applied to a set of multiple images. Thus, the phrases "include multiple images" and (comprising multiple images" used in the claims are "vague and indefinite" and thereby rendering the scope of the claims unascertainable.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Hilton et al. US. 5,452,416.

17. Regarding independent claim 1, "an image display method for displaying a plurality of images on a display means, wherein; based on at least one display protocol sequence, in which a plurality of display protocols that define a display layout are lined up in a predetermined order, the display layout of said plurality of images is switched by switching said display protocols and said plurality of images are displayed on said display means." Hilton et al. discloses in col. 6 lines 64 - col. 7 line 3 and col. 7 lines 16-34.

Hilton suggests that the plurality of images is an image series for example an axial T2 series including 18 images for display. Hilton also suggests that the display protocols that define the display layout are predetermined, for example Hilton disclose them as "monitor" and "series" mode. In his "monitor mode" col. 6 line 66 Hilton teaches, "the display container is subdivided into rectangular array of 20 presentation areas. In the monitor mode of image presentation, an image series is shown in a single display container in its sequence order such that each presentation area of the display container includes one image of the sequence."

In his "series mode" col. 7 line 34 Hilton teaches, "in the series mode, a display container comprising a rectangular array of rectangular presentation area is displayed on one or more monitors. For example, the display container in Fig. 4 includes four substantially rectangular presentation areas numbered 1,2,3, and 4 in the drawing."

18. Regarding dependent claim 2, "...wherein; for cases in which there are multiple display protocol sequences, the desired display protocol sequence can be selected, and based on the selected display protocol sequence, said plurality of images are displayed on the display means." Hilton et al. discloses in col. 5 line 34-40, and col. 6 line 57- col. 7 line 65. Hilton disclose in col. 5 line 34-40 that "in Fig. 2, the interface processes 14 includes a conventional directly-manipulated user interface 14a which is directly connected to a screen driver 14b. The screen driver 14b is connected to the trackball mechanism 16 and the keyboard 22, passing input from these devices by conventional means directly to the user interface 14a." This is being interpreted as being able to select the desired display protocol sequence.

19. Regarding dependent claim 3, " ...wherein; said plurality of display protocol sequences can be switched, and based on the display protocol sequence switched to, said plurality of images are displayed on the displayed means." Hilton et al. discloses in col. 7 lines 16-34 and also applicant disclose this in description of the related art section page 3 lines 5- 9.

20. Regarding dependent claim 4,"...wherein; the display protocol sequences are created based on the predetermined conditions, and based on said created display protocol sequence, said plurality of images are displayed on the display means." Hilton et al. disclose in col. 8 lines 24-68.

21. Claims 5-8 recite apparatus for performing the method of claims 1-4; therefore they are similar in scope and rejected under the same rationale.
22. Regarding dependent claim 13,"...wherein each of the plurality of display protocols include multiple images and wherein protocol sequence includes at least two of the plurality of display protocols to be arranged in a predetermined temporal order." Hilton et al. disclose in col. 6 lines 33-46.
23. Regarding dependent claim 14,"...wherein each of the plurality of display protocols include multiple images and wherein the control means controls at least two of the plurality of display protocols to be arranged in a predetermined temporal order." Hilton et al. disclose in col. 5 lines 44-46.
24. Regarding dependent claim 16,"...wherein protocol sequence includes at least two of the plurality of display protocols to be arranged in a predetermined temporal order and wherein the protocol sequence can be switched to a different protocol sequence prior to reaching a last protocol of the protocol sequence." Hilton et al. disclose in col. 10 lines 3-68, Fig. 3 and Fig.4.
25. Claim 19 is similar in scope to claim 16 and therefore rejected under the same rationale.
26. Claim 17 and 20 recite apparatus for performing the method of claims 16 and 19; therefore they are similar in scope and rejected under the same rationale.

Claim Rejections - 35 USC § 103

27. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

28. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilton et al.

29. Claims 9-12, 15, 18 and 21 recite a computer-readable medium storing a program for executing the method of claims 1-4, 13, 16 and 19. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented the method of claims 1-4, 13, 16 and 19 as computer executable instructions stored on a computer-readable medium so that the method of 1-4, 13, 16 and 19 can be ported to other computer systems.

Response to Arguments

30. Applicant's arguments filed 5/27/03 have been fully considered but they are not persuasive.

31. Applicant on page 6, paragraph one states, "Fig. 3 illustrates a first display sequence P1, a second display sequence P2 and a third display sequence P3. Each of the display sequence is useful for analysis. ....By selection of the protocol sequence, the order of display P1, P2, and P3 will be output without the physician memorizing the

display sequence." P1, P2 and P3 according to specification page 4 line 16-20 are not display sequences, they represent examples of display protocols. Also according to page 5 line 14-19 "display protocol sequence" is composed of display protocols which can be selected in a predetermined order based on the predetermined conditions like the type of examination, the series, etc.

32. Applicant argues on page 6 paragraph 2 of Amendment A that

> "Hilton displays images in a first sequence, which are also correlated with images in a second sequence output to a different display device. If an image in the first sequence is switched, its corresponding image in the second sequence also becomes switched. More particularly, Fig. 3 of Hilton illustrates one series of axial images T2 of an MRI output. The system of Hilton contemplates that side-by-side monitors would output a similar arrangement of axial images, one monitor displaying the axial images T2 and the other monitor displaying the axial images T1. If the images for T1, enumerated N (N=1 to 18) is switched, then its corresponding enumerated image N for T2 is also switched. The arrangement for the image sequences T1 or T2 is not to a particular order. Col.7, lines 16 to col. 8, line 2. Therefore, like the conventional case, the physician must memories that a particular protocol layout (e.g. T1) corresponds to a first type arrangement and another protocol layout (e.g. Fig.4, "series mode") corresponds to another to display images in particular sequence."

Hilton disclose in col.4 line 41-49 the specific arrangement for the axial series T1 and T2 by stating "In the examples given below, the anatomical target is the head of a human patient and it is assumed that three distinct series of images have

been taken of the target. Two of these series are termed "axial". The images of an axial series represent parallel, planar images of cross-sectional anatomy taken along an imaginary vertical axis of the head. Each axial series is generated to emphasize particular anatomical features by varying parametric values of the MRI process."

Hilton discloses in col. 6 lines 61 through col. 7 line 10 and in Fig. 3 the display container (on one monitor) which is subdivided equally into 20 rectangular areas. An axial series images, for example T2 (from 1 to 18), is displayed on the display container at a time (each rectangular area shows 1 of 18 images). The second axial series can be displayed on the separate display container. Further he disclose, "The axial T2 sequence illustrated in FIG. 3 is ordered by assignment to each image in the series of a monotonically increasing number. The number assigned to an image represents the image's position in the sequence of which it is a member. In the monitor mode of the presentation, a display container such as that illustrated in FIG. 3 is output on all but one of the monitors or monitor equivalents supported by the system....This permits more than one image series to be presented, with each image series being presented in its sequence order in a presentation area of a respective display container on a particular monitor. Since co-relative series such as axial T1 and axial T2 typically consist of an identical number of images taken at identical planes, identical side-by-side presentations of axial T1 and T2 series on adjacent monitors in the manner illustrated in FIG. 3 contributes significantly to a radiologist's ability to differentially analyze the images." Hilton discloses "monitor mode" in Fig. 3 and "series mode" in Fig. 4.

Hilton discloses in col. 7 line 35-52 a different display layout named "series mode" in which the display monitor is divided into series of display

container (for example rectangular areas) and each display container or (rectangular area) displays one image series. This means four sets of image data (image series) like axial T1, axial T2, sagittal T1, and axial XX are displayed on the divided monitor at once. Fig. 4 of Hilton is identical to Fig. 3 of current application as well as the display layout for the two figures.

Therefore, a doctor or radiologist can just switch the presentation mode and switch the display layout of images displayed on two different monitors.

33. Applicant argues on page 7 line 5 – 21 that the examiner is confusing concepts between a "protocol sequence" and a "display protocol". Applicant also argues that the claim describes that the protocol sequence includes a predetermined order for the plural display protocol. Applicant's definition of the display protocol is disclosed in specification page 4 lines 16 to 20 as follows:

> "The expression "display protocol" refers the protocol which defines image layout, image display conditions, image processing conditions, etc., based on an examination, a series, the examining doctor or group of doctors, the place an image will be used and/or the purpose of the image, etc. More specifically, a definition by which a screen is divided into four regions... a definition by which a screen is divided into 9 regions..., a display screen may be divided up and images displayed based on whether

MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

35. Any this communication or earlier communications from the examiner should inquiry concerning be directed to **Faranak Fouladi** whose telephone number is **703-305-3223.** The examiner can normally be reached on Mon-Fri from 8:00-4:30.

36. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Michael Razavi** can be reach at **703-305-4713.**

37. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, DC. 20231

Or faxed to: 703-872-9314 (for Technology Center 2600 only)

38. Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, sixth-floor (Receptionist).

39. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is 703-872-9306.

Faranak Fouladi-Semnani
Patent Examiner
Art Unit 2672

MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600